Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy		DATE: February 2012

APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE
1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	PE 0604562N: *Submarine Tactical Warfare System*

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	48.269	48.466	49.141	-	49.141	49.371	48.280	46.450	46.247	Continuing	Continuing
0236: *SSN Comb Cont Sys Imprvmnt (ENG)*	48.269	48.466	49.141	-	49.141	49.371	48.280	46.450	46.247	Continuing	Continuing

A. Mission Description and Budget Item Justification

Project Unit 0236: This program develops Commercial-Off-The-Shelf (COTS) based software and hardware upgrades to integrate improved tactical and weapons control capabilities for multiple submarine Classes (SSN-688, SSGN, SEAWOLF, and VIRGINIA (Post Shakedown Availability)). The AN/BYG-1 is the combat control system common across submarine platforms which incorporates tactical control, weapon control, and tactical Local Area Network (LAN) functions into a single development program. The hardware upgrades, Technology Insertions (TI) are developed on a biennial basis to provide improved capability and address COTS obsolescence. Funding also accommodates the biennial integration of software Advanced Processing Builds (APB) for both tactical control (APB(T)) and weapon control (APB(W)) subsystems. The tactical control integration effort incorporates the integration of other sensor (ESM, sonar, radar, etc.) inputs to provide a common operational picture and improved situational awareness in an information assurance (IA) compliant environment. The weapon control development effort provides improvements to the weapons control subsystem based on improvements to missiles and torpedoes. AN/BYG-1 allows the submarine Navy to rapidly update the ship safety tactical picture, integrate the common tactical picture into the battlegroup, improve torpedo interfaces, and provide Tactical TOMAHAWK (TOMAHAWK Block IV) capability.

B. Program Change Summary ($ in Millions)

	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Previous President's Budget	50.537	48.466	49.451	-	49.451
Current President's Budget	48.269	48.466	49.141	-	49.141
Total Adjustments	-2.268	-	-0.310	-	-0.310
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.800	-			
• SBIR/STTR Transfer	-1.211	-			
• Program Adjustments	-	-	-0.220	-	-0.220
• Rate/Misc Adjustments	-	-	-0.090	-	-0.090
• Congressional General Reductions Adjustments	-0.257	-	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy	**DATE:** February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604562N: *Submarine Tactical Warfare System*

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy									DATE: February 2012	

APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: Development & Demonstration (SDD)			R-1 ITEM NOMENCLATURE PE 0604562N: Submarine Tactical Warfare System				PROJECT 0236: SSN Comb Cont Sys Imprvmnt (ENG)			

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0236: SSN Comb Cont Sys Imprvmnt (ENG)	48.269	48.466	49.141	-	49.141	49.371	48.280	46.450	46.247	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project Unit 0236: This program develops Commercial-Off-The-Shelf (COTS) based software and hardware upgrades to integrate improved tactical and weapons control capabilities for multiple submarine Classes (SSN 688, SSGN, SEAWOLF, and VIRGINIA (Post Shakedown Availability)). The AN/BYG-1 is the combat control system common across submarine platforms which incorporates tactical control, weapon control, and tactical Local Area Network (LAN) functions into a single development program. The hardware upgrades Technology Insertions (TI) are developed on a biennial basis to provide improved capability and address COTS obsolescence. Funding also accommodates the biennial integration of software Advanced Processing Builds (APBs) for both tactical control (APB(T)) and weapon control (APB(W)) subsystems. The tactical control integration effort incorporates the integration of other sensor (ESM, sonar, radar, etc.) inputs to provide a common operational picture and improved situational awareness in an information assurance (IA) compliant environment. The weapon control development effort provides improvements to the weapons control subsystem based on improvements to missiles and torpedoes. AN/BYG-1 allows the submarine Navy to rapidly update the ship safety tactical picture, integrates the common tactical picture into the battlegroup, improves torpedo interfaces and provides Tactical TOMAHAWK (TOMAHAWK Block IV) capability.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Title: Advanced Processor Builds	23.110	21.079	22.663
Articles:	0	0	0
FY 2011 Accomplishments: Continue development of APB-11 into AN/BYG-1 baseline. FY 2012 Plans: Complete APB-11 integration into AN/BYG-1 (TI-12) baseline. Support development of APB-13 into AN/BYG-1 baseline. FY 2013 Plans: Continue development of APB-13 into AN/BYG-1 baseline.			
Title: AN/BYG-1 TI-10	6.616	3.320	-
Articles:	0	0	
FY 2011 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604562N: *Submarine Tactical Warfare System*	**PROJECT** 0236: *SSN Comb Cont Sys Imprvmnt (ENG)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Continue development, integration, and test of the next generation AN/BYG-1 (TI-10) for SSN 688/SSGN/VA Class submarines. ***FY 2012 Plans:*** Complete development, integration, and test of the next generation AN/BYG-1 (TI-10) for SSN 688/SSGN/VA Class submarines.			
Title: AN/BYG-1 TI-12 Articles:	6.001 0	10.533 0	4.426 0
FY 2011 Accomplishments: Continue development, integration, and test of the next generation AN/BYG-1 (TI-12) for SSN 688/SSGN/VA Class submarines. ***FY 2012 Plans:*** Continue development, integration, and test of the next generation AN/BYG-1 (TI-12) for SSN 688/SSGN/VA Class submarines. ***FY 2013 Plans:*** Continue development, integration, and test of the next generation AN/BYG-1 (TI-12) for SSN 688/SSGN/VA Class submarines.			
Title: AN/BYG-1 TI-14 Articles:	- 	3.178 0	7.118 0
FY 2012 Plans: Begin engineering development process for selection and prototyping of new technologies. ***FY 2013 Plans:*** Continue development, integration and test of the next generation AN/BYG-1 (TI-14) for SSN 688/SSGN/VA Class submarines.			
Title: AN/BYG-1 TI-16 Articles:	- 	- 	3.030 0
FY 2013 Plans: Begin engineering development process for selection and prototyping of new technologies.			
Title: Testing Articles:	6.000 0	4.000 0	5.340 0
FY 2011 Accomplishments: Complete DT/OT for AN/BYG-1 APB-09 on 688 Class/SSGN/Seawolf/VA Class submarines. Begin DT/OT for AN/BYG-1 TI-10 on SSN 688/SSGN/Seawolf/VA Class submarines. ***FY 2012 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604562N: *Submarine Tactical Warfare System*	**PROJECT** 0236: *SSN Comb Cont Sys Imprvmnt (ENG)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Complete DT/OT for AN/BYG-1 TI-10 on SSN 688/SSGN/Seawolf/VA Class submarines. Begin DT/OT for AN/BYG-1 APB-11 on SSN 688/SSGN/Seawolf/VA Class submarines. *FY 2013 Plans:* Complete DT/OT for AN/BYG-1 APB-11 on SSN 688/SSGN/Seawolf/VA Class submarines. Begin DT/OT for AN/BYG-1 TI-12 on SSN 688/SSGN/Seawolf/VA Class submarines.			
Title: Information Assurance (IA) ***Articles:***	6.542 0	6.356 0	6.564 0
FY 2011 Accomplishments: Complete integration of IA Toolkit and continue IA Certification Testing on BYG-1 TI-10. *FY 2012 Plans:* Develop and integrate IA Toolkit and conduct IA Certification Testing on BYG-1 TI-12. *FY 2013 Plans:* Complete integration of IA Toolkit and continue IA Certification Testing on BYG-1 TI-12			
Accomplishments/Planned Programs Subtotals	48.269	48.466	49.141

C. Other Program Funding Summary ($ in Millions)

  N/A

D. Acquisition Strategy

  This budget integrates APBs developed by the advanced development community.
  This program has been tailored in accordance with the new DoD5000 directive to incorporate annual MDA production reviews.
  Advanced Processing Builds (APB) products associated with AN/BYG-1 Release-To- Fleet 3Q 2011, 3Q 2013, 3Q 2015 and 3Q 2017.

E. Performance Metrics

  AN/BYG-1 Submarine Combat and Weapon Control System performance metrics for each Advanced Processor Build (APB) and Technology Insertion (TI) cycle are contained in the classified Capability Production Document (CPD) annex to the overarching system requirements as laid out in the Capabilities Development Document (CDD). Each APB cycle receives an updated CPD based on fleet required capabilities.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy | | | DATE: February 2012 | | | | | | | | |

| APPROPRIATION/BUDGET ACTIVITY
1319: Research, Development, Test & Evaluation, Navy
BA 5: Development & Demonstration (SDD) | R-1 ITEM NOMENCLATURE
PE 0604562N: Submarine Tactical Warfare System | PROJECT
0236: SSN Comb Cont Sys Imprvmnt (ENG) |

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AN/BYG-1 TECH INSERTION	C/CPIF	GENERAL DYNAMICS (GDAIS):FAIR LAKES, VA	66.532	6.338	Oct 2011	6.446	Oct 2012	-		6.446	Continuing	Continuing	Continuing
AN/BYG-1 TECH INSERTION	C/CPIF	GENERAL DYNAMICS (GDAIS):PITTSFIELD, MA	17.629	8.847	Oct 2011	8.997	Oct 2012	-		8.997	Continuing	Continuing	Continuing
GOVERNMENT ENGINEERING	WR	NUWC:NEWPORT, RI	73.994	2.653	Oct 2011	2.698	Oct 2012	-		2.698	Continuing	Continuing	Continuing
INFORMATION ASSURANCE	C/CPAF	PROGENY:MANASSAS, VA	12.642	6.356	Oct 2011	6.564	Oct 2012	-		6.564	Continuing	Continuing	Continuing
AN/BYG-1 TECH INSERTION	C/CPAF	RAYTHEON:PORTSMOUTH, RI	53.350	-		-		-		-	0.000	53.350	53.350
MULTI TUBE WEAPON SIMULATOR	Various	PROGENY:Not Specified	2.635	-		-		-		-	0.000	2.635	2.635
AN/BYG-1 TECH INSERTION	Various	MITRE:Not Specified	2.429	-		-		-		-	0.000	2.429	2.429
AN/BYG-1 TECH INSERTION	C/CPIF	ANTEON:Not Specified	6.000	-		-		-		-	0.000	6.000	6.000
COTS HARDWARE & SOFTWARE	C/CPAF	DDL OMNI:Not Specified	8.500	-		-		-		-	0.000	8.500	8.500
COMMON WEAPON LAUNCHER	C/CPAF	PROGENY:Not Specified	38.329	-		-		-		-	0.000	38.329	38.329
		Subtotal	282.040	24.194		24.705		-		24.705			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
APB SOFTWARE INTEGRATION	C/CPIF	GENERAL DYNAMICS (GDAIS):FAIRLAKES, VA	50.890	3.570	Oct 2011	3.576	Oct 2012	-		3.576	Continuing	Continuing	Continuing
APB SOFTWARE INTEGRATION	C/CPIF	GENERAL DYNAMICS:PITTSFIELD, MA	9.135	4.590	Oct 2011	4.613	Oct 2012	-		4.613	Continuing	Continuing	Continuing

Exhibit R-3, **RDT&E Project Cost Analysis:** PB 2013 Navy												**DATE:** February 2012		

APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604562N: *Submarine Tactical Warfare System*	**PROJECT** 0236: *SSN Comb Cont Sys Imprvmnt (ENG)*

Support ($ in Millions)

				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
APF SOFTWARE INTEGRATION	WR	NUWC:NEWPORT, RI	35.198	5.382	Oct 2011	5.103	Oct 2012	-		5.103	Continuing	Continuing	Continuing
SOFTWARE DEVELOPMENT	Various	VARIOUS:Not Specified	40.315	4.286	Oct 2011	3.794	Oct 2012	-		3.794	Continuing	Continuing	Continuing
APB SOFTWARE INTEGRATION	C/CPAF	RAYTHEON:PORTSMOUTH, RI	44.466	-		-		-		-	0.000	44.466	44.466
		Subtotal	180.004	17.828		17.086		-		17.086			

Test and Evaluation ($ in Millions)

				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
DEVELOPMENT TEST & EVALUATION	WR	NUWC:NEWPORT, RI	27.614	2.599	Oct 2011	3.116	Oct 2012	-		3.116	Continuing	Continuing	Continuing
TEST & EVALUATION	Various	VARIOUS:Not Specified	4.495	1.401	Oct 2011	2.224	Oct 2012	-		2.224	Continuing	Continuing	Continuing
OPERATIONAL TEST & EVALUATION	WR	COMOPTEVFOR:Not Specified	16.169	-		-		-		-	0.000	16.169	16.169
		Subtotal	48.278	4.000		5.340		-		5.340			

Management Services ($ in Millions)

				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	**Contract Method & Type**	**Performing Activity & Location**	**Total Prior Years Cost**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Award Date**	**Cost**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
PROGRAM MANAGEMENT SUPPORT	C/CPFF	URS:ARLINGTON, VA	14.035	2.184	Oct 2011	2.010	Oct 2012	-		2.010	Continuing	Continuing	Continuing
TRAVEL	WR	NAVSEA:ARLINGTON, VA	0.620	0.260	Oct 2011	-		-		-	Continuing	Continuing	Continuing
ACQUISITION WORKFORCE	Various	Not Specified:Not Specified	-	-		-		-		-	0.000	0.000	0.282
		Subtotal	14.655	2.444		2.010		-		2.010			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy							DATE: February 2012		
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*			R-1 ITEM NOMENCLATURE PE 0604562N: *Submarine Tactical Warfare System*				PROJECT 0236: *SSN Comb Cont Sys Imprvmnt (ENG)*		
	Total Prior Years Cost	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	524.977	48.466	49.141	-	49.141			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		**DATE:** February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604562N: *Submarine Tactical Warfare System*	**PROJECT** 0236: *SSN Comb Cont Sys Imprvmnt (ENG)*

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604562N: *Submarine Tactical Warfare System*	PROJECT 0236: *SSN Comb Cont Sys Imprvmnt (ENG)*

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Page 1				
Acq Milestones: Annual MDA Program Review - FY11	4	2011	4	2011
Acq Milestones: Annual MDA Program Review - FY12	4	2012	4	2012
Acq Milestones: Annual MDA Program Review - FY13	4	2013	4	2013
Acq Milestones: Annual MDA Program Review - FY14	4	2014	4	2014
Acq Milestones: Annual MDA Program Review - FY15	4	2015	4	2015
Acq Milestones: Annual MDA Program Review - FY16	4	2016	4	2016
Acq Milestones: Annual MDA Program Review - FY17	4	2017	4	2017
APB I&T, Certification: APB-11: APB-11	1	2011	3	2012
APB I&T, Certification: APB-13: APB-13	4	2012	3	2014
APB I&T, Certification: APB-15: APB-15	4	2014	3	2016
APB I&T, Certification: APB-17: APB-17	4	2016	4	2017
Development, I&T Certification: TI-10: TI-10	1	2011	3	2011
Development, I&T Certification: TI-12: TI-12	1	2011	3	2013
Development, I&T Certification: TI-14: TI-14	4	2012	3	2015
Development, I&T Certification: TI-16: TI-16	4	2014	3	2017
Development, I&T Certification: TI-18: TI-18	4	2016	4	2017
Test & Evaluation Milestones: AN/BYG-1: APB-09 DT/OT	1	2011	1	2011
Test & Evaluation Milestones: AN/BYG-1: TI-10 DT/OT	4	2011	1	2012
Test & Evaluation Milestones: AN/BYG-1: APB-11 DT/OT	4	2012	1	2013
Test & Evaluation Milestones: AN/BYG-1: TI-12 DT/OT	4	2013	1	2014
Test & Evaluation Milestones: AN/BYG-1: APB-13 DT/OT	4	2014	1	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy				DATE: February 2012	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*		**R-1 ITEM NOMENCLATURE** PE 0604562N: *Submarine Tactical Warfare System*		**PROJECT** 0236: *SSN Comb Cont Sys Imprvmnt (ENG)*	

Events by Sub Project	Start		End	
	Quarter	**Year**	**Quarter**	**Year**
Test & Evaluation Milestones: AN/BYG-1: TI-14 DT/OT	4	2015	1	2016
Test & Evaluation Milestones: AN/BYG-1: APB-15 DT/OT	4	2016	1	2017